C. Remarks

This amendment is responsive to the Final office action dated December 22, 2003. In the office action, claims 1-8, 12-13, 15-16, 19-20, 28-29 and 31-32 were rejected under 35 U.S.C. 102(b), as anticipated by the patent to Lennig et al (US 5,479,488). Claims 9-11, 14, 17, 21-27 and 33-38 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lennig, in view of Milewski et al (US 6,501,834), and claims 18 and 30 were rejected under 35 U.S.C. 103(a), as being unpatentable over Lennig in view of Son et al (US 6,212,408).

In order to more clearly define, and distinctly claim, the present invention from the prior art, independent claims 1, 15, and 28 have been amended to recite that the disclosed system provides seamless access to disparate data sources through a single phone call, and has multi-level voice grammars capable of automatically identifying the data sources that need to be accessed. This is based on the voice commands naturally uttered by the user, *without prompting the user for any specific inputs*. In particular, the present invention enables a user to access disparate data sources *without requiring the user to answer any pre-recorded questions*, thereby making the process seamless. Further, these means provide access to data stored in disparate data sources, without the user having to explicitly specify the data source in which the data source is present. The support for these recitations is found on pp 8, lines 12-24; pp 9, lines 1-24; and pp10, lines 1-12.

Additionally, the present invention allows the seamless switching of contexts, depending on the voice commands given by the user. The user needs to merely utter a command in the form of a sentence. Thereafter, the system automatically identifies the

context of the command, the data sources required to be accessed, and the data desired by the user. When a user utters two successive voice commands, the commands are independently analyzed to identify the requested data. Therefore, the system handles each command depending on the command's context, without being influenced by the varying contexts of the successive commands. This enables the user to seamlessly switch contexts, while navigating through disparate data sources. The support for these recitations is found on pp 16, lines 5-32; pp 17, lines 1-30; and pp 18, lines 1-17.

The present invention set forth in claim 1, as amended, is directed to a system that provides voice-activated seamless access to information from a plurality of disparate data sources during a single phone session. The system comprises a telephony platform that provides an interface between various telephone networks and the system. A speech recognizer recognizes the voice commands of the user. The system has a multi-level voice grammar that spans the relevant contexts of all the disparate data sources. The multi-level grammar comprises means for automatically identifying the context of the voice commands recognized by the speech recognizer. This means for automatically identifying enables the system to identify the context of a voice command given by the user, without requiring the user to respond to any pre-recorded questions, thereby making the process seamless. The multi-level grammar also comprises means for automatically identifying data sources pertaining to the identified contexts, and for identifying the information desired by the user. These means, operating with the means for identifying the context of the voice commands, automatically determine the information desired by the user, and the data sources required for accessing the information by using the recognized voice commands. The

system includes several extractors to access the identified data sources and extract the desired information. The system also has an interpreter for parsing the voice commands recognized by the speech recognizer and the multi-level grammar. The interpreter also controls the telephony platform and the extractors, to access the desired information.

Claim 15, as amended, is directed to a method which provides voice-activated seamless access to information from a plurality of disparate data sources in a single phone session. In accordance with the method, the user logs in and issues voice commands in the form of sentences. These voice commands are recognized and interpreted. The step of recognizing voice commands includes automatically identifying the context of the voice commands. The step also includes automatically identifying the data sources that require to be accessed, by using the identified contexts. The information desired by the user is then identified by using the recognized voice commands. Subsequently, the desired information is extracted from the identified data sources and provided to the user.

Claim 28, as amended, is directed to a computer program product for implementing the method explained in claim 15, which provides seamless access to disparate data sources in a single phone session.

Turning now to the references cited in the office action, the patent to Lennig et al. (US Patent No. 5,479,488) discloses a system for automating directory assistance by using speech recognition. In accordance with the patent, the user is prompted with certain questions (steps 306, and 313 in FIG 3A, and steps 320 and 327 in FIG 3B). The user input, received in response to the question, is searched for in a particular lexicon. The lexicon is selected depending on the question. For example, consider the

case in which a user wants to access the phone number of John Smith from his MSOutlook address book. Lennig's approach would be as follows:

1. User dials into the system
2. System queries the user on the task that needs to be performed
3. User speaks the nature of the task to be performed (e.g., retrieve phone number)
4. System inquires on the specifics of the task (e.g., where do you want to search)
5. User speaks response to system's question (e.g., MSOutlook)
6. System inquires about the name of the person whose phone number is required

The point to be noted is that the system defined by Lennig *is not able to take in more than one piece of information at a time* and, therefore, the process has to be very interactive with constant inputs from the user. Therefore, Lennig's method is a menu-driven one.

The present invention, as described in the amended claim 1, would perform the above-stated example in the following manner:

1. User dials into the system
2. User speaks a natural sentence (e.g., retrieve the phone number of John Smith from MSOutlook address book)

As can be seen from the above example, the present invention, as per the amended claims, discloses a multi-level grammar that automatically identifies the data desired by the user, along with the data sources required to be accessed, without requiring the user to respond to any specific questions. Therefore, the present invention is different from the menu-driven system of Lennig.

The multi-level grammar enables the system to classify the voice commands into various contexts, and therefore enables access to disparate data sources such as, but

not limited to, email systems, Customer Relationship Management (CRM) systems, calendars, LDAP, and so forth. Since the patent to Lennig uses matching of lexemes in lexicons and does not use any grammar to analyze the voice commands, the patent fails to span disparate data sources and provides access to only one type of data source, i.e., directories.

In the office action, the use of "a priori probabilities", disclosed in the patent to Lennig, is deemed to anticipate the means for identifying the context of the voice commands. The a priori probabilities disclosed in the patent to Lennig uses parameters such as the calling number, the population of a particular locality, etc. Therefore, it differs from the means for identifying context, which analyze the voice commands themselves to identify the context. Further, the a priori probabilities only determine the weight or probability of a particular lexeme in a particular lexicon. The a priori probabilities are not used to select the lexicon that needs to be searched. However, the means for automatically identifying the context of voice commands enables automatic identification of the data sources to be accessed and the data to be extracted. These means possess substantial intelligence to infer the context from the voice command uttered by the user. Therefore, the system does not require the user to respond to any specific questions.

In the office action, the means for identifying data sources pertaining to the identified context is deemed to be anticipated by the means for storing locality names in locality lexicons, as disclosed in the patent to Lennig et al. In Lennig's patent, each question posed to the user corresponds to a lexicon. There is no intelligence involved in identifying the lexicon corresponding to the response of the user. However, the means for identifying data sources, in accordance with the present invention, intelligently

identifies the data source, depending on the identified context. For example, the user utters a sentence such as "Call John Smith on work phone." The context of the command would be identified as "making a telephone call." Thereafter, the means for identifying data sources will determine that the "address book" of the user is the required data source. Therefore, these means are distinctly distinguished from the locality lexicons, which merely list certain locality names.

The above-mentioned distinct features of the present invention enable users to seamlessly access information from disparate data sources, without being prompted with any questions. Further, the system, in accordance with the present invention, enables the user to switch contexts seamlessly. The user can ask for his calendar on a particular day in one command, and make a request for making a telephone call in the subsequent command. The patent to Lennig fails to provide these functionalities and is restricted to information retrieval from directories.

Referring to rejections to claims 9-11, 14, 17, 21-27 and 33-38, the patent to Milewski et al (US 6,501,834) relates to the determination of the communication status of an email sender. It mentions VoiceXML only with respect to rendering VoiceXML attachments at a receiving client in a 'communication status' monitor. The present invention, in accordance with the amended claims, uses VoiceXML to conduct dialogues with the end-user. Further, in view of the amended claims 1, 15 and 28, the present invention clearly defines over Lennig, and, therefore, also over Lennig in view of Milewski.

The patent to Son et al (US 6,212,408) is directed to a system and method which allows a communication device to accept voice commands from a user. It does not talk about data retrieval and presentation by using VoiceXML. Further, Son et al. does not

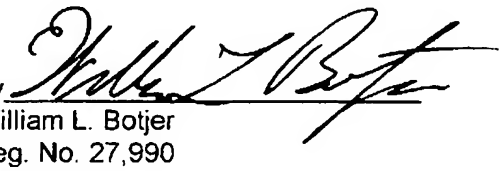
describe the ability to handle multiple data sources in a single phone call.

To summarize, the references cited in the office action do not disclose, or suggest, seamless voice activated access to disparate data sources by automatic identification of the context of the voice commands. Further, the cited references fail to disclose the seamless switching of context in a single phone call session. Therefore, the present invention provides features that are not present in the prior art, when taken alone or in combination. The distinguishing features distinctly claimed in the present claims, as amended, are neither anticipated, nor rendered obvious over, by the prior art.

The present claims have been amended to highlight the distinctions of the present invention over the prior art, and it is respectfully submitted that the claims are now clearly patentable over the art of record, and notice to that effect is earnestly solicited. If the Examiner has any questions regarding this matter, the Examiner is requested to telephone the applicant's attorney at the numbers listed below, prior to issuing an Advisory Action.

Respectfully submitted,

Dated: March 22, 2004

By 

William L. Botjer
Reg. No. 27,990
PO Box 478
Center Moriches, NY 11934
(212) 737-5728 (Tue-Thurs)
(631) 874-4826 (Mon & Fri)